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Indusekar Ponna Reddy

Lakshmi Dabbiru

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Group Targeting for Video Ads Based on Location Context

Group watching of content selected by members of a group may result in improper selection of suggested content. For example, many users watch videos in a group setting by broadcasting or streaming the videos from a user device (e.g. smart phone or tablet) to a television system for group consumption (or in other methods in similar implementations, such as the use of a smart phone or tablet to control a playlist streamed to the television from a server or other such methods⁰). An ad displayed to the group (e.g. interstitial video ads, pre-roll or post-roll video ads, banner ads, pop-up ads, etc.) should be appropriate and selected based on the interests of the whole audience watching it. Similarly, suggested content (e.g. for subsequent viewing after a video is complete) should be appropriate to the whole group.

In typical systems, suggested content and ads are selected based only on the profile and interests of the user of the controlling device (e.g. smartphone, tablet, smart television, etc.) or the account owner of a currently logged in account, but not the entire group. This may result in annoyance or frustration if content is improperly selected or suggestions are inappropriate for the group (e.g. ads for R-rated horror movies during a group viewing session with younger viewers). If videos, ads, or other content that is not appropriate to the whole group is shown, then users may be potentially annoyed or wish to stop viewing.

Instead, an end to end content selection and serving system may select and display appropriate video ads based on the combined interests of the group rather than an individual device owner or account owner controlling the session.

In one implementation, a content provider or publisher, such as an advertiser, may use an interface to select filters or configurations for providing different content to groups, such as a family audience, a group of friends, etc. Content providers may provide different bidding prices for content selection and serving, in systems utilizing auction formats, for group based watch scenarios.

To determine group viewership, in one implementation, when a user is using a device to cast videos to a media device such as a television (e.g. directly, via control of a

playlist, etc., as discussed above), the media device may transmit a request for additional content (e.g. interstitial or pre-roll ads, banner ads, suggested content, etc.). The request may include the device information used for casting or selection (e.g. device identifier, user identifier, account identifier, or other such information), Internet Protocol (IP) address and/or port number of the media device and/or casting or selection device, and other details. The server may utilize the received device information and IP address to identify device identifiers of all the other devices connected to the same WiFi Local Area Network (LAN).

For example, in one implementation, the server may direct the media device and/or the casting/selection device to perform a network scan to identify other devices (e.g. address resolution protocol (ARP) scan broadcast to local area network addresses; a broadcast ping on the LAN segment; etc.). Device identifiers determined in this way may be provided to the server, to identify corresponding user accounts.

In another implementation, on log-in on a device to the server, the server may record the IP address of the device along with the device identifier. The server may look up the IP address received in the content request to identify other device identifiers corresponding to other account owners. Thus, the server may identify devices that have logged in from the same IP address as the requesting device, indicating that they may be devices of friends or family members of the original account owner. The external IP address of the network may be used for this comparison, rather than internal IP addresses. In case of IP address release and reuse (e.g. DHCP or similar protocols), the server may identify devices that have logged in from the same IP address within a predetermined time period (e.g. 1 hour, 1 day, etc.).

Accordingly, the system may identify the accounts of each audience member, and may then select content appropriate to the group, rather than individual users. The server may respond to the original request with content selected from an aggregate or intersection of profiles of the group (e.g. by modifying a playlist, by transmitting or streaming content to a media device, etc.).

To protect privacy of the users and viewers, only device identifiers and external IP addresses may be collected in some implementations. The collected data may also be anonymized or disambiguated to protect user privacy. In many such

implementations or similar situations in which personal information about the user of client device may be collected for measurement or used to select third-party content, the user may be provided with an opportunity to control whether programs or features that may collect personal information (e.g., information about a user's social network, social actions or activities, a user's preferences, or a user's current location) do so, or an opportunity to control whether or how to transmit data to the server. In addition, certain data may be treated in one or more ways before it is stored or used by the server, so that personally identifiable information is removed when generating parameters (e.g., demographic parameters). A user's identity may be anonymized so that no personally identifiable information can be determined for the user, or a user's geographic location may be generalized where location information is obtained (such as to a city, ZIP code, or state level), so that a particular location of a user cannot be determined. Thus, the user may have control over how information is collected about him or her and used by the servers and content providers.

Abstract

The systems and methods described herein provide for selecting additional content based on profiles of a group of viewers, rather than a profile of a single viewer controlling the group viewing session. A content request may include an IP address and device identifier, and a content selection server may retrieve other device identifiers associated with the IP address. The content selection server may select content based on the aggregation of profiles of users corresponding to the retrieved device identifiers, rather than just that of the user associated with the device providing the initial content request.